



A.D. 1873, 13th MARCH. N° 912.

Apparatus for Dealing with Sewage, &c.

(This Invention received Provisional Protection only.)

PROVISIONAL SPECIFICATION left by Robert Stevenson Symington at the Office of the Commissioners of Patents, with his Petition, on the 13th March 1873.

I, ROBERT STEVENSON SYMINGTON, of Glasgow, in the County of 5 Lanark, North Britain, Telegraph Engineer, do hereby declare the nature of the said Invention for “IMPROVEMENTS IN APPARATUS FOR DEALING WITH SEWAGE AND OTHER REFUSE OR WASTE SO AS TO LESSEN THE POLLUTION OF RIVERS,” to be as follows, that is to say :—

This Invention relates to improvements in apparatus for the better 10 carrying out and extending of the system described or referred to in the Specification of Letters Patent granted to William Strang, and dated 28 August 1868, (No. 2667).

In one modification of the apparatus made with the present improve- 15 ments a neat and sightly cast-iron structure is used, being of a rectangular form in plan, and also having a rectangular contour in elevation, but with an arched space beneath the middle part of it. This cast-iron structure is provided with two inlets at the top, one for the connection

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of a soil pipe from a series of waterclosets, and the other for the connection of a waste pipe from a series of sinks, or jaw boxes, baths, wash-hand basins, or the like. There is an overflow outlet for liquid and a discharge outlet for solid or semi-solid excremental matters, the latter being arranged in the arched space herein-before referred to, and being 5 furnished with a close fitting valve for periodical discharges. The apparatus is formed with various other passages, but these are formed within the structure. The soil inlet communicates with a compartment in the middle of the structure having the discharge outlet at its bottom, and from the top of this compartment the liquid entering with the soil over- 10 flows through perforations or a grating into an inclined passage leading down to the lower and outer side of a lateral compartment made with a bottom inclined up from the outer side towards the middle. This lateral compartment is filled up to a certain level with ashes, through which the liquid filters in an upward direction, a perforated metal plate being 15 laid on the top of the ashes to slightly compress them. The liquid filtering up in this way overflows into a passage leading it to the outer lower side of a second lateral compartment on the other side of the middle or soil compartment, and this second lateral compartment is filled or partly filled with animal charcoal, up through which the liquid filters 20 to the overflow outlet. The liquid entering by the other inlet is passed through only the filtering compartment last described, and passes off by the same overflow outlet. The two filtering compartments are furnished with discharge outlets and close fitting doors to allow of the convenient removal of the contents when saturated. Below the cast-iron structure 25 that has been described a pit is formed with doors in the floor just beyond the ends of the structure, and in this pit the upper middle part is occupied by a receptacle for ashes and cinders formed with inclined sides, which as well as the bottom are grated. The doors already mentioned lead into the lower part of the pit, and are for the reception 30 of vegetable and animal refuse, which will be deodorised by the ashes passing through the gratings whilst access is obtained to the receptacle for ashes by doors in the vertical ends of the cast-iron structure, such doors opening on bottom hinges and being made with sides so as when open to form hoppers to lead the ashes properly inwards. 35

The general form and arrangement of the structure may of course be modified to suit different circumstances and localities.

If it should be found necessary or desirable more filtering power may

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be obtained by arranging one or more additional filtering compartments in the arched space.

In some cases the combined receptacles for ashes, and for vegetable and animal refuse may be comprised within the lower part of the cast-
5 iron structure instead of being arranged beneath it.

The improved apparatus is applicable not only for dealing with sewage or discharges from waterclosets, privies, kitchens, stables, byres, and the like, but also for dealing with any mixtures of water and solid im-
purities, such as are ordinarily discharged from chemical or other
10 manufactories or public works into drains, sewers, or rivers.

In a modification suitable for some public works a large fixed tank is constructed, by preference of a cylindrical form, and has placed within it a similar movable tank with a grated bottom to contain the ashes or other filtering medium. The impure water is admitted into a space
15 beneath the grated tank, and whilst solid matters can deposit on the bottom of the fixed tank the water filters up through the materials in the grated tank, and when these materials become saturated the grated tank can be lifted out, and one with fresh materials introduced.

In some cases the water may be made to pass through two or more of
20 such filtering tanks in succession, with similar or different filtering materials in each, whilst the filtration may be made downwards in one tank and upwards in another.

It will also in some cases be beneficial to cause the water to be exposed to the atmosphere, by falling in a broken manner through a sufficient
25 height before passing through the last filtering tank.

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